PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of	Docket No: Q91286
Toshiaki KASHIHARA, et al.	
Appln. No.: 10/560,244	Group Art Unit: 2834
Confirmation No.: 4994	Examiner: Karl I. Tamai
Filed: December 12, 2005	

For: ALTERNATOR FOR A VEHICLE HAVING INSULATION LAYERS

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In accordance with the provisions of 37 C.F.R. § 41.37, Appellant submits the following:

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I. REAL PARTY IN INTEREST

The real party in interest is MITSUBISHI DENKI KABUSHIKI KAISHA, by virtue of an assignment recorded by the Assignment Branch of the U.S. Patent and Trademark Office on December 12, 2005, at Reel 017361, Frame 0260.

II. RELATED APPEALS AND INTERFERENCES

To the knowledge and belief of Appellant, the Assignee, and the undersigned, there are no other appeals or interferences before the Board of Appeals and Interferences that will directly affect or be affected by the Board's decision in the instant Appeal.

III. STATUS OF CLAIMS

Claims 2, 3, 7-9, 11, and 12 are canceled from the Application.

Claims 1, 4-6, 10, and 13-16 are all the claims pending in the application.

Specifically, claims 1, 4, 13, and 15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Fujita et al. (US 2002/0043886), hereinafter referred to as "Fujita" in view of Oohashi et al. (US 2003/0015932), hereinafter referred to as "Oohashi" and further in view of Ohashi et al. (US 6,018,205), hereinafter referred to as "Ohashi".

Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Fujita, Oohashi, and Ohashi, and further in view of Asao et al. (US 6,281,612), hereinafter referred to as "Asao".

Claims 6 and 10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Fujita, Oohashi, Ohashi, and further in view of Oohashi et al. (US 2002/0096958), hereinafter referred to as "Oohashi '958".

Claim 14 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Fujita, Oohashi and Ohashi, and further in view of Yumiyama et al (US 5,587,619), hereinafter referred to as Yumiyama.

Claim 16 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Fujita, Oohashi, and Ohashi, and further in view of Oohashi et al. (US 6,417,585), hereinafter referred to as "Oohashi '585".

The rejected claims 1, 4-6, 10, and 13-16 are being appealed.

IV. STATUS OF AMENDMENTS

With the filing of this Brief, all Amendments have been entered and considered by the Examiner.

The Appendix included with this Brief sets forth the claims involved in the appeal and reflects all of the claim amendments that have been entered by the Examiner.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

Appellant's invention relates to an ac generator. In related art, there has been proposed an ac generator with each of the electrical conductors being separately disposed in space, one spaced out from another. Moreover, in the related art, the thickness of insulating layers in a cross-over portion of electric conductors has been set smaller than that in a slot-in portion located in the slots, in order to improve the cooling capabilities in the cross-over portion of the conductors and obtain higher output and efficiency of the generator. In the related art, electric conductors are coated with insulator films, and these films cause thermal dissipation of the conductors to be seriously suppressed to low levels. However, it is practically impossible for the insulator films to be removed or made smaller in thickness beyond a point, because the insulation capability of the conductors will be weakened, which can lead to a short circuit (*see* page 1, line 3 to page 2, line 7 of the specification).

In an exemplary embodiment, however, insulation capacity between the coils and downsizing is improved without separately disposing each conductor in its own space. In an exemplary embodiment, the shape of the conductors in the slot-in portions located in the slot is substantially rectangular in its cross-section and the thickness in insulation layers of that portion is smaller than the other portion so that heating from the conductors can be efficiently conducted to the laminated core and the housing. On the contrary, the thickness in insulating layers of the cross-over portions is larger than at the other portions, insulation capability among the coils is assured and the axial height of the cross-over portion can be lowered to prevent conductors of the

cross-over portion from water immersion, improving electrolytic corrosion resistibility without disposing unnecessary space among coils (*see* page 3, lines 9 to 21 of the specification).

Specifically, an ac generator for a vehicle has a housing 23 including a front bracket 21 and a rear bracket 22, each of which is constructed in a bowl-shape and made of aluminum of good heat conductance, a shaft 26 installed in the housing 23 and on one end of which a pulley 24 is fixed, a rotor 27 secured on the shaft 26, a fan 25 secured on both ends of the axis of the rotor 27, a stator 40 fixed on the housing 23 so as to surround the rotor 27, a slip-ring 28 fixed on the other end of the shaft 26 to serve a current to the rotor 27, a pair of brushes 29 sliding over the surface of the slip-ring 28, a brush holder 30 for storing the brushes 29, a rectifier 31 electrically connected to the stator 40 for rectifying an alternative current generated by the stator 40 into a direct current, and a regulator 32 fixedly inserted to the bush holder 30 for regulating a magnitude of the ac voltage generated by the stator 40 (*see* Fig. 1; page 5, line 8 to page 6, line 1 of the specification).

The rotor 27 is provided with a field winding 33 through which the current flows to generate magnetic flux and a pair of pole cores 34, 35 provided so as to surround the field winding 33 to form a pole by its magnetic flux. The pair of pole cores 34, 35 is made of iron and is provided with claw-type poles 34a, 35a each of which has substantially a trapezoidal shape in the external configuration thereof and is protruded from the edge of its periphery on circumferentially equiangular pitch. The pair of pole cores 34, 35 is fixed in opposed position on the shaft 26 so that each of the claw-type poles 34a, 35a is geared to each other. The stator 40 is constituted with a cylindrical stator core 41 formed by laminated magnetic steel plates and a

stator winding 42 wound on the stator core 41, and is firmly sandwiched between the front bracket 21 and the rear bracket 22 so as to form a uniform air gap between the outer peripheral surface of the claw-type poles 34a, 35a and the inner peripheral surface of the stator core 41. The front bracket 21 has an air charging hole 36 and an air discharging hole 37 and the rear bracket 22 also has an air charging hole 38 and an air discharging hole 39 (*see* Fig. 1; page 6, lines 1 to 20 of the specification).

A stator core 41A is manufactured in a way that the magnetic steel plates pressed in a predetermined shape respectively are integrally laminated to form a cylindrical body, and slots 41c are formed on the stator core 41A in circumferentially substantially equiangular pitch. On the other hand, the stator winding 42A is comprised of 6 phases of windings 43A mounted on the stator core 41A by shifting slots 41c to be mounted one by one. The conductor 44 is provided with a slot-in portion 44a and a cross-over portion 44b. Each slot-in portion 44a of the conductors 44 installed in the slot 41c is formed substantially in a rectangular shape in the cross section, and the thickness of the insulating coating 45 coated in a longer side of its rectangular shape is smaller than that of the cross-over portion (coil end portion) 44b. Moreover, the cross-over portion (coil end portion) 44b which connects the slot-in portion 44a at the shaft end portion of the stator core 41A is formed substantially in a circular shape in the cross section, and the thickness of the insulating coating of the cross-over portion 44b is larger than that of at least the longer side of the slot-in portion 44a. The slot-in portion 44a of the conductor 44 is installed in each slot 41c through an insulating paper 46 in a way that the longer side of it, substantially rectangular shape in the cross section is disposed facing to a circumferential direction and each

slot-in portion 44a is tightly stacked by 10 layers on a line to the radial direction. The slot-in portion 44a is constructed so that the longer side of a substantially rectangular shape in the cross section is larger in length than a gap 41e (slot opening) between collars 41d to prevent the conductor 44 from dropping out of the slot (*see* Figs. 3-5; page 7, line 4 to page 8, line 21 of the specification).

In an exemplary embodiment, because the conductor is formed of previously coated insulated wire and the slot-in portion of the conductor is molded to substantially rectangular in its cross-sectional profile before it is entered in the slots so that at least a longer side portion of the conductor has an insulation coating of which thickness is smaller than that of insulation coating in the cross-over portion, because the slot-in portions of the conductor are accumulated in the slots so that a longer side thereof is being in the radial direction without any air space and a shorter side thereof in a circumferential direction, and the cross-over portion is kept substantially circular in its cross-sectional profile without being molded, the longer side thereof being tightly contacted with the inner surface of the slot in a wide area, and because the laminated core is directly supported to the housing, the heat generated by armature windings can be easily transmitted to the laminated core through a thinner insulated coating and dissipated in the radial direction to the housing through the periphery of the laminated core, resulting in further enhancement of the output power and efficiency of the generator.

A. Claim 1

An ac generator for a vehicle comprising: a rotor having field windings and a plurality of fan blades which bend incoming air at a right angle and a stator including a stator core arranged opposed to the rotor and an insulating coated electrical conductor wound on the stator core (*see* Fig. 1; page 5, line 8 to page 6, line 20 of the specification). A housing directly supporting a periphery of the stator core and protecting the electrical conductor, where the stator core is constituted by laminated core having a plurality of slots each extending to an axial direction, the electrical conductor is comprised of a slot-in portion located in the slots and a cross-over portion connecting each of the slot-in portions at the shaft end side of the stator (*see* Figs. 4 and 5, page 7, line 4 to page 8, line 21 of the specification).

In claim 1, the conductor is formed of a previously coated insulated wire and the slot-in portion of the conductor is molded to be substantially rectangular in its cross-sectional profile before it is entered in the slots so that at a least longer side portion of the conductor of the slot-in portion located in the slots has an insulation coating of which thickness is smaller than that of insulation coating in the cross-over portion (*see* Figs. 3 and 4; page 7, line 24 to page 8, line 17 of the specification).

The slot-in portions of the conductor are accumulated in the slots so that a longer side thereof is being in the radial direction without any air space and a shorter side thereof in a circumferential direction, and the cross-over portion is kept substantially circular in its cross-sectional profile without being molded. That is, since the slot-in portions 44a of the conductor 44 are accumulated in slots 41c in the radial direction without any air space, it is possible to raise

densities of electrical conductors in the slot-in portion and conductivities of heat from electrical conductors to the laminated core or the housing. In order to realize such a conductor rod, an insulation coating conductor with round shape in cross section is molded to substantially rectangular shape in cross section by a mill roll and the like before it is entered in slots 41c (*see* Figs. 4 and 5; page 7, line 24 to page 9, line 22 of the specification).

The periphery of the cross-over portion is protected by the housing 23 and the laminated core is directly held by the housing made of metal (*see* Fig. 1; page 10, lines 19 to 23 of the specification). The periphery of the housing 23 is provided with a number of ribs 62 and charging air holes 36 or discharging air holes 37 formed between the ribs 62(*see* Fig. 8; page 13, line 20 to page 15, line 8 of the specification).

Accordingly, in an exemplary embodiment, the cooling effects of the insulating coated electrical conductor are efficiently improved by combining a longer side portion of the conductor of the slot-in portion being in the radial direction without any air space and by having the laminated core directly held by the housing made of metal, and the periphery of the housing being with a plurality of ribs and charging air holes or discharging air holes formed between the ribs.

Claim 13

In claim 13, the insulation coated electrical conductor has a diameter of 1.6 mm for the cross-over portion and is flattened into one direction to a thickness of 1.3 mm for the slot-in portion (*see* page 9, line 13 to page 10, line 18 of the specification).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

There are five issues on Appeal.

1) Whether claims 1, 4, 13, and 15 are improperly rejected under 35 U.S.C. § 103(a) as being unpatentable over Fujita et al. (US 2002/0043886), hereinafter referred to as "Fujita" and Oohashi et al. (US 2003/0015932), hereinafter referred to as "Oohashi" in view of Ohashi et al. (US 6,018,205), hereinafter referred to as "Ohashi".

2) Whether claim 5 is improperly rejected under 35 U.S.C. § 103(a) as being unpatentable over Fujita, Oohashi, Ohashi, in view of Asao et al. (US 6,281,612), hereinafter referred to as "Asao".

3) Whether claims 6 and 10 are improperly rejected under 35 U.S.C. § 103(a) as being unpatentable over Fujita, Oohashi, and Ohashi, in view of Oohashi et al. (US 2002/0096958), hereinafter referred to as "Oohashi '958.

4) Whether claim 14 is improperly rejected under 35 U.S.C. § 103(a) as being unpatentable over Fujita, Oohashi, and Ohashi, in view of Yumiyama et al (US 5,587,619), hereinafter Yumiyama, and

5) Whether claim 16 is improperly rejected under 35 U.S.C. § 103(a) as being unpatentable over Fujita, Oohashi, and Ohashi, in view of Oohashi et al. (US 6,417,585), hereinafter referred to as "Oohashi '585".

VII. ARGUMENT

The first issue on appeal is whether *claims 1, 4, 13, and 15 are improperly rejected under 35 U.S.C. § 103(a) as being unpatentable over Fujita et al. (US 2002/0043886), hereinafter referred to as "Fujita" and Oohashi et al. (US 2003/0015932), hereinafter referred to as "Oohashi" in view of Ohashi et al. (US 6,018,205), hereinafter referred to as "Ohashi".* Appellant respectfully requests the Board to reverse this final rejection at least for the following exemplary reasons. Appellant addresses each of the finally rejected claims below. At least initially, Appellant's arguments focus on claim 1.

A. Exemplary Features of Claim 1

Independent claim 1 *inter alia* recites:

> a housing directly supporting a periphery of the stator core and protecting the electrical conductor, wherein the stator core is constituted by laminated core having a plurality of slots each extending to an axial direction, the electrical conductor is comprised of a slot-in portion located in the slots and a cross-over portion connecting each of the slot-in portions at the shaft end side of the stator,
>
> wherein the conductor is formed of a previously coated insulated wire and the slot-in portion of the conductor is molded to be substantially rectangular in its cross-sectional profile before it is entered in the slots so that at least a longer side portion of the conductor of the slot-in portion located in the slots has an insulation coating of which thickness is

smaller than that of insulation coating in the cross-over portion, and

wherein the slot-in portions of the conductor are accumulated in the slots so that a longer side thereof is being in the radial direction without any air space and a shorter side thereof in a circumferential direction, and the cross-over portion is kept substantially circular in its cross-sectional profile without being molded,

wherein the periphery of the cross-over portion is protected by the housing and the laminated core is directly held by the housing made of metal, and

wherein the periphery of the housing is provided with a plurality of ribs and charging air holes or discharging air holes formed between the ribs.

Because the conductor is formed of previously coated insulated wire and the slot-in portion of the conductor is molded to substantially rectangular in its cross-sectional profile before it is entered in the slots so that at least the longer side portion of the conductor has an insulation coating of which thickness is smaller than that of insulation coating in the cross-over portion, and because the slot-in portions of the conductor are accumulated in the slots so that a longer side thereof is being in the radial direction without any air space and a shorter side thereof in a circumferential direction, and the cross-over portion is kept substantially circular in its cross-sectional profile without being molded, the longer side thereof being tightly contacted with the inner surface of the slot in a wide area, and because the laminated core is directly supported to the housing, the heat generated by armature windings can be easily transmitted to the laminated core through a thinner insulated coating and dissipated in the radial direction to the housing

through the periphery of the laminated core, resulting in further enhancement of the output power and efficiency of the generator.

Moreover, the cooling effects of the insulating coated electrical conductor are efficiently improved by combining a longer side portion of the conductor of the slot-in portion being in the radial direction without any air space and by having the laminated core directly held by the housing made of metal, and the periphery of the housing being with a plurality of ribs and charging air holes or discharging air holes formed between the ribs.

B. Examiner's Position

The Examiner alleges that Fujita describes that the periphery of the cross-over portion is protected by the housing and the laminated core is directly held by the housing made of metal, and that Ohashi describes ribs and discharge holes, as set forth in claim 1 (*see* page 10 of the Office Action). The Examiner further alleges that Oohashi describes a) the conductor being formed of previously coated insulated wire, b) insulation coating being thinner in the longer side of the conductor of the slit-in portion and c) having the slot-in portions accumulate in the slots without any air space (*see* pages 4-5 and 10 of the Office Action). Appellant respectfully disagrees.

C. Appellant's Position

Fujita describes an insulated coating 26 such as a varnish or resin which is applied to coil ends after completion of coil windings to the core (Fig. 12). Fujita also describes the core 17 being housed inside the housing 3 (Fig. 1; ¶ 103). In Fujita, however, there is no disclosure or

even remote suggestion of the core being directly held by the metal housing. In short, Fujita does not disclose or suggest the laminated core is directly held by the housing made of metal

In addition, in Fujita, there is no disclosure or suggestion of the insulated wire (*i.e.*, the conductor) that are previously coated being molded to be substantially rectangular in its cross-sectional profile before it is entered in the slots so that at least longer side portion of the conductor of the slot-in portion located in the slots has an insulation coating of which thickness is smaller than that of the insulation coating in the cross-over portion. Fujita simply describes the resin being applied to coil ends after completion of the coil windings to the core. .

In short, Fujita does not disclose or suggest a) the conductor being formed of previously coated insulated wire that are molded to be substantially rectangular in its cross-sectional profile before it is entered in the slots so that at least longer side portion of the conductor of the slot-in portion located in the slots has an insulation coating of which thickness is smaller than that of the insulation coating in the cross-over portion and b) the periphery of the cross-over portion is protected by the housing and the laminated core is directly held by the housing made of metal. Oohashi and Ohashi do not cure these deficiencies.

The Examiner acknowledges that Fujita does not disclose or suggest c) ribs and discharge holes, d) insulation coating being thinner in the longer side of the conductor of the slit-in portion, and e) having the slot-in portions accumulate in the slots without any air space (*see* pages 4-5 and 10 of the Office Action). Appellant respectfully submits that Oohashi and Ohashi do not cure these deficiencies.

Oohashi describes a stator 35 which is constituted by: a stator core 11 composed of a laminated core formed into a cylindrical shape, a plurality of slots 11a extending in an axial direction being formed in the stator core 11 at a predetermined pitch in a circumferential direction so as to open onto an inner circumferential side; a stator winding 36 formed by installing a plurality of continuous conductor wires in the slots 11a; and an insulator 13 mounted to each of the slots 11a. In Oohashi, the stator winding 36 is provided with a plurality of winding phase portions in each of which one conductor wire 40 is installed into a wave winding so as to fold over outside the slots 11a at first and second end surfaces of the stator core 11 and alternately occupy an inner layer and an outer layer in a slot depth direction in every sixth slot of the slots 11a. A copper wire material 60 covered with an electrically-insulating coating is used for the conductor wires 40. Portions of the conductor wires 40 housed inside the slots 11a (slot-housed portions 42) have a rectangular cross section, and linking portions 41 of the conductor wires 40 each connecting in series a slot-housed portion in the inner layer in a first slot 11a and a slot-housed portion in the outer layer in a second slot 11a six slots away at the first and the second end surfaces of the stator core 11 have a circular cross section. The linking portions 41 are each constituted by: a return portion 41a; and a pair of inclined portions 41b connecting the return portion 41a and each of the slot-housed portions 42, the linking portions at the first and second end surfaces of the stator core 11 forming first and second coil ends, respectively (Fig. 14; ¶¶ 133-135).

As noted by the Examiner, Oohashi describes the core being laminated and not the conductor formed of a previously coated insulated wire that is molded to be substantially

rectangular in its cross-sectional profile before it is entered in the slots so that at least longer side portion of the conductor of the slot-in portion located in the slots has an insulation coating of which thickness is smaller than that of the insulation coating in the cross-over portion. In other words, in Oohashi, copper wire material 60 covered with insulating coating is used but it does not disclose or suggest the molding of claim 1.

Also, the Examiner's position that flat sides of Oohashi are in contact without any air space (*see* page 4 of the Office Action) amounts to a mere speculation not substantiated by any evidence of record. The Examiner alleges that where the slot-in portions of the conductor are accumulated in the slots so that a longer side thereof is being in the radial direction without any air space as set forth in claim 1 is described in ¶ 165 of Oohashi which indicates that the coils are in close contact with the side wall of the slot to dissipate heat into the core (*see* page 10 of the Office Action). Appellant respectfully submits that "in close contact" does not mean that there are no air spaces. In an exemplary embodiment, cooling effects of the insulating coated electrical conductor are efficiently improved by having the slot-in portions accumulated in the slots so that a longer side thereof in the radial direction is without any air space. In Oohashi, there is no disclosure or suggestion that there are no air spaces.

Furthermore, Oohashi does not suggest that the laminated core is directly held by the housing made of metal, and wherein the periphery of the housing is provided with a plurality of ribs and charging air holes or discharging air holes formed between the ribs.

Ohashi does not cure these deficiencies. Ohashi describes a vehicle alternator which includes a case having a pair of brackets placed back-to-back, in which ribs are disposed, which

define ventilation windows (29; 74) in a bracket body. The ribs serve as heat passage members (54, 60; 73), which have higher thermal conductivity than the bracket body and are partially embedded in the bracket body. Therefore, heat resistance in the heat transfer passage between the stator and the ventilation windows is reduced, and the heat generated by the stator is expelled efficiently from the ventilation windows to the outside air, and the temperature of the stator can be reduced (*see* Abstract and Fig. 2).

Specifically, Ohashi describes a conventional technique in which ribs 28 define windows 29 (Fig. 8) which suffers from poor heat dissipitation (col. 2, lines 42 to 57) and then Ohashi describes that ribs 54 define exhaust windows 29 (Fig. 2; col. 4, lines 13 to 28). Ohashi, however, does not disclose or suggest that the ribs are at the periphery of the housing (*see e.g.* Fig. 1 of an exemplary embodiment).

That is, Ohashi does not describe the slot-in portions of the conductor being accumulated in the slots so that a longer side thereof is being in the radial direction without any air space, the laminated core being directly held by the housing made of metal where the periphery of the housing is provided with a plurality of ribs and charging air holes or discharging air holes formed between the ribs, as set forth in claim 1.

In short, Fujita in view of Oohashi and Ohashi do not describe the unique features of claim 1. For at least these exemplary reasons, claim 1 is patentable over Fujita in view of Oohashi and Ohashi. Accordingly, Applicant respectfully requests the Examiner to withdraw this rejection of claim 1 and its dependent claims 4, 13, and 15.

D. Additional Arguments for Dependent Claim 13

Dependent claim 13 recites: "the insulation coated electrical conductor has a diameter of 1.6 mm for the cross-over portion, and the insulation coated electrical conductor is flattened into one direction to a thickness of 1.3 mm for the slot-in portion."

In an exemplary embodiment, it is described that when the insulating coating conductor with round shape in cross section of 1.6 mm in diameter is rolled by the mill roll into one direction to 1.3 mm thickness flattened, the insulating coating on a surface rolled, that is a flattened insulating coating is extended thinly, but the insulating coating on a surface not rolled, that is a circular curved insulating coating keeps unchanged in the thickness, causing the flattened insulating coating to be thinner than the circular curved insulating coating. Namely, as the thickness of the insulating coating becomes thin in the radial direction, the amount of heat generated by armature windings is effectively dissipated to the periphery of the laminated core positioned in the radial direction and promotion of output power and efficiency of the generator are achieved by synergistic effect of improvement in lamination factor in slots and heat conductivity (¶ 26).

The Examiner alleges that Fujita describes that the diameter of the portions are a result effective variable and as such these parameters would have been obvious to optimize the expense of the generator with the current carry capacity of the generator (*see* page 8 of the Office Action). Appellant respectfully disagrees.

The grounds of rejection dismiss the values set forth in claim 1 as "involving only routine skill in the art." However, "[a] particular parameter must first be recognized as a result-effective

variable . . . before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation." MPEP § 2144.05(b). See also MPEP § 2143.01 ("Fact that the claimed invention is within the capabilities of one of ordinary skill in the art is not sufficient by itself to establish *prima facie* obviousness.").

The grounds of rejection allege that Fujita describes the diameter as a result effective variable. Fujita, however, simply describes that the portions of the conductors of an approximately circular cross section throughout to be installed in the slots are pressed to an approximately rectangular cross section. Hence, the cost may be reduced because conductors of an approximately circular cross section are inexpensive (¶ 150). In other words, Fujita relates to the shape of the portions and clearly not the size.

In other words, Fujita clearly does not disclose or suggest the size of the portions being a result-effective variable. Moreover, as evident from the MPEP passages cited above, the rationale given as support for the conclusion of obviousness, namely that experiment with parameters is routine, "especially when the specifics [with respect to the actual dimensions] are not disclosed," is clearly contrary to law. Disclosure, not non-disclosure, is the foundation of any *prima facia* determination of obviousness. Regardless of the context, the prior art must, in all circumstances, suggest the desirability of the modification before the resultant modification is rendered obvious. MPEP § 2143.01.

For at least these additional exemplary reasons, therefore, dependent claim 13 is patentable over Fujita in view of Oohashi and Ohashi.

Claim 5 is improperly rejected under 35 U.S.C. § 103(a) as being unpatentable over Fujita, Oohashi, Ohashi, in view of Asao et al. (US 6,281,612), hereinafter referred to as "Asao". Claims 6 and 10 are improperly rejected under 35 U.S.C. § 103(a) as being unpatentable over Fujita, Oohashi, and Ohashi, in view of Oohashi et al. (US 2002/0096958), hereinafter referred to as "Oohashi '958". Claim 14 is improperly rejected under 35 U.S.C. § 103(a) as being unpatentable over Fujita, Oohashi, and Ohashi, in view of Yumiyama et al (US 5,587,619), hereinafter "Yumiyama," and claim 16 is improperly rejected under 35 U.S.C. § 103(a) as being unpatentable over Fujita, Oohashi, and Ohashi, in view of Oohashi et al. (US 6,417,585), hereinafter referred to as "Oohashi '585". Appellant respectfully traverses these grounds of rejections at least in view of the following exemplary comments.

Claims 5, 6, 10, 14, and 16 depend on claim 1. It was already demonstrated that Fujita in view of Oohashi and Ohashi do not meet all the features of independent claim 1. Neither Asao, Oohashi '958, Yumiyama, and Oohashi '585, independently or in combination, address this deficiency of Fujita in view of Oohashi and Ohashi. Together, the combined teachings of these references would not have (and could not have) led the artisan of ordinary skill to have achieved the subject matter of claim 1. Since claims 5, 6, 10, 14, and 16 depend on claim 1, they are patentable at least by virtue of their dependency.

D. Conclusion

The USPTO is directed and authorized to charge the statutory fee (37 C.F.R. §41.37(a) and 1.17(c)) and all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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Date: September 27, 2010

CLAIMS APPENDIX

CLAIMS 1, 4-6, 10 and 13-16 ON APPEAL:

1. (previously presented): An ac generator for a vehicle comprising:

a rotor having field windings and a plurality of fan blades which bend incoming air at a right angle,

a stator including a stator core arranged opposed to the rotor and an insulating coated electrical conductor wound on the stator core, and

a housing directly supporting a periphery of the stator core and protecting the electrical conductor, wherein the stator core is constituted by laminated core having a plurality of slots each extending to an axial direction, the electrical conductor is comprised of a slot-in portion located in the slots and a cross-over portion connecting each of the slot-in portions at the shaft end side of the stator,

wherein the conductor is formed of a previously coated insulated wire and the slot-in portion of the conductor is molded to be substantially rectangular in its cross-sectional profile before it is entered in the slots so that at a least longer side portion of the conductor of the slot-in portion located in the slots has an insulation coating of which thickness is smaller than that of insulation coating in the cross-over portion, and

wherein the slot-in portions of the conductor are accumulated in the slots so that a longer side thereof is being in the radial direction without any air space and a shorter side thereof in a

circumferential direction, and the cross-over portion is kept substantially circular in its cross-sectional profile without being molded,

wherein the periphery of the cross-over portion is protected by the housing and the laminated core is directly held by the housing made of metal, and

wherein the periphery of the housing is provided with a plurality of ribs and charging air holes or discharging air holes formed between the ribs.

2 - 3. (canceled).

4. (previously presented): An ac generator for a vehicle of claim 1, wherein a conductor of the slot-in portion located in the slots is closely disposed on a line to the radial direction.

5. (previously presented): An ac generator for a vehicle of claim 1, wherein a conductor of the slot-in portion located in the slot is closely disposed on plural lines to the radial direction.

6. (original): An ac generator for a vehicle of claim 1, wherein a conductor of the slot-in portion located in the slot is impregnated with insulating resins.

7 - 9. (canceled).

10. (previously presented): An ac generator for a vehicle of claim 6, wherein the insulation coating in the slot-in portion and the insulation coating in the cross-over section are made of the same material.

11 - 12. (canceled).

13. (previously presented): The ac generator for a vehicle of claim 1, wherein the insulation coated electrical conductor has a diameter of 1.6 mm for the cross-over portion, and the insulation coated electrical conductor is flattened into one direction to a thickness of 1.3 mm for the slot-in portion.

14. (previously presented): The ac generator for a vehicle of claim 1, wherein the thickness of the insulation coating of the cross-over portion is 50 um, and

the thickness of the insulation coating of the slot-in portion is 40 um.

15. (previously presented): The ac generator for a vehicle of claim 8, wherein the plurality of fan blades draw the incoming air longitudinally from the charging air holes and exhaust the air through the discharging air holes.

16. (previously presented): The ac generator for a vehicle of claim 1, wherein the incoming air is bent centrifugally.

EVIDENCE APPENDIX:

NONE.

RELATED PROCEEDINGS APPENDIX

NONE.

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of	Docket No: Q91286
Toshiaki KASHIHARA, et al.	
Appln. No.: 10/560,244	Group Art Unit: 2834
Confirmation No.: 4994	Examiner: Karl I. Tamai
Filed: December 12, 2005	

For: ALTERNATOR FOR A VEHICLE HAVING INSULATION LAYERS

SUBMISSION OF APPEAL BRIEF

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Submitted herewith please find an Appeal Brief. The statutory fee of $540.00 is being remitted. The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

/ Dvorso /

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Date: September 27, 2010